

10/03/2004

REPLACEMENT, 04.09.2005

Translation of the pertinent portions of a response by KBA,
dtd. 10/12/2004

RESPONSIVE TO THE NOTIFICATION OF 09/03/2004

1. The following are being filed:

1.1 Claims

(Replacement pages 74 to 81, version of
10/12/2004)

1.1.1 New claim 1

New claim 1 is formed from original claims 1, 8 and 42 in accordance with the specification on page 50, paragraph 3, together with Figs. 21 and 24, so that the interaction of the transport cylinder with four cutters arranged one behind the other in the circumferential direction of the transport cylinder can be found.

1.1.2 New claim 2

New claim 2 is formed from original claims 1, 8 and 42 in accordance with the specification on page 50, paragraph 3, together with Figs. 21 and 24. The expression "cutting cylinders arranged one behind the other at the circumference of the transport cylinder (123)" can be clearly seen in Figs. 20 and 24.

1.1.3 New claim 3 to 45

New claim 3 to 45 correspond to original claims 2 to 39 and 42 to 46, wherein in new claim 42 reference to the cutting cylinder (127') with four cutters (128), already recited in the reference numerals, has been clarified.

1.1.4 Original claims 40, 41 and 47

Original claims 40, 41 and 47 have been cancelled.

1.2 Preamble of the Specification

(Replacement pages 1 to 3, version of 10/12/2004)

The expression "claim 1 or 40" was changed to "of claim 1 or 2".

D1 and [sic - should be "D2"] were acknowledged, the acknowledgement of "Walenski" was replaced by that of WO 03/031179 A2, and the acknowledgement of DE 41 28 797 A1 was conformed.

2. Re.: The Cited References

2.1 Re.: D1 (USP 5,503,379)

A folding apparatus with a double-width, seven-field folding cylinder and a double width cutting cylinder is known from USP 5,503,379, wherein two cutting devices can be arranged axially next to each other on the double-width cylinder. It neither shows two cutting cylinders, acting together with one (the same) transport cylinder and arranged one behind the other, nor a cutting cylinder one behind the other at the circumference. The two side-by-side arranged formers in Fig. 1 at most allow a conclusion regarding a press of a width of four printed pages, and not a one with six printed pages arranged axially side-by-side.

2.2 Re.: D2 (USP 5,303,909)

D2 corresponding to already acknowledged DE 41 28 797 A1 does disclose a triple-width web-fed rotary printing press. However, the continuous webs enter a folding apparatus with two pairs, each having a folding cylinder and a cutting cylinder, and a folding apparatus with a "seven field" transport cylinder, which in turn acts together with two cutting cylinders, each having two cutters, and a cutting cylinder having four cutters.

3. Novelty and Inventive Activities

Since none of the cited references anticipates all characteristics of present claims 1 or 2, these are novel.

Departing, for example, from a printing press providing a large output in accordance with D2 or WO 03/031 179 A2, the object arises of being able to further process the continuous webs being created even as a thick total product dependably and free of interferences. In D2 there is only the suggestion of an ability to distribute the continuous webs on two folding devices.

The combination with D1 at most discloses that a transport cylinder can be employed by way of example with seven, or also five sections. A particular reason for selecting seven sections along the circumference is not provided here. Provided one skilled in the art selects - on the basis of D2 - the transport cylinder with seven sections from D1, the cutting problem in respect to particularly thick products has still not been satisfactorily resolved. By arranging two "normal" cutting devices at the same transfer cylinder, or a stronger cutting cylinder, dependability in producing correspondingly thick products is achieved in combination with a seven-field transfer

cylinder. For this a further step would be necessary, starting with D2 and the subsequent selection of the seven-field transport cylinder from D1. He would selectively have to use, for example, the four-field cutting cylinder from USP 3,540,723 in addition.

This combination of characteristics resulting in success is, however, not suggested to one skilled in the art even if combining several documents of the prior art, and is therefore based on inventive activities.

4. Prior Art

It is requested to also consider the previously published WO 03/031 179 A2 of Applicant in the process.

5. Interview / Intermediate Notification

Should there be doubts on the part of the Examination Department regarding clarity and/or inventive activities in connection with the filed claims, an

INTERVIEW / SECOND NOTIFICATION

is requested prior to the preparation of the international preliminary examination report. Agreement regarding a date can be quickly established by calling 0931 / 909-61 05.

Enclosures

Claims, replacement pages 74 to 81,
Specification, replacement pages 1 to 3,
each in the version of 10/12/2004, in triplicate.

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Specification

Web-Fed Rotary Printing Press

The invention relates to a web-fed rotary printing press in accordance with the preamble of claim 1 or 2.

A printing press with printing units for printing six side-by-side arranged newspaper pages, a folder structure with two groups of three formers each and an adjoining folding apparatus is known from WO 03/031 179 A2. The printing unit, folder structure and folding apparatus can be driven by independent motors.

"Offsetdrucktechnik" [Offset Printing Technology] by H. Teschner, Fachschriftenverlag GmbH & Co. KG [publishers of specialized literature], discloses on page 10/32 in Fig. 6 a nine-cylinder satellite printing unit on which a three cylinder color deck for 4/1 printing is arranged.

DE 25 28 008 A1 shows a printing press for a direct printing process with forme cylinders, which can be equipped with six printing plates in the axial direction and with two printing plates in the circumferential direction, and with counter-pressure cylinders, which can be covered with three printer's blankets in the axial direction and with one in the circumferential direction. Both the side-by-side arranged printing plates and the side-by-side arranged printer's blankets are each arranged offset in the circumferential direction.

DE 25 10 057 A1 also discloses a printing press for the direct printing process, wherein the forme cylinder,

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which works together with the counter-pressure cylinder, supports six printing plates over its width and two over its length.

A printing group with forme, transfer and counter-pressure cylinders is known from JP 56-021860 A, wherein each one of the three cylinders is driven by its own drive motor.

A triple-width web-fed rotary printing press is known from DE 41 28 797 A1, wherein longitudinally folded continuous webs can enter a folding apparatus having two pairs each with a folding cylinder and a cutting cylinder.

A printing press with printing groups of a width of six newspapers is known from "Newspapers & Technology", December 2000. The printing groups are embodied as bridge printing groups, wherein the transfer cylinders are covered with rubber blanket sleeves.

WO 01/70608 A1 discloses a turning bar arrangement, wherein two turning bars substantially of a width of a partial web are each displaceably arranged transversely in respect to the direction of the incoming partial web on a support. A register roller is arranged laterally outside of the lateral frame, whose longitudinal axis extends substantially parallel with the lateral frame and which can also be displaced in a direction transversely in respect to the direction of the incoming web.

A folder structure is known from USP 4,671,501, wherein two formers are arranged one on top of the other, wherein the webs, following their passage through run-up rollers upstream of a third former, are longitudinally cut, the partial webs are turned by 90° by a third former and are thereafter combined into two continuous webs, and are conducted to the formers which are arranged on top of each other.

A folder structure with two groups of formers, which are offset vertically in respect to each other, is known from EP 1 072 551 A2. A harp, i.e. a group of collecting,

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take-off, or also harp rollers is arranged above each group of formers, over which the respective partial webs are conducted to the assigned group of formers.

A folder structure is known from WO 97/17200 A2, wherein cut partial webs, which are transversely offset in relation to each other, are conducted to different formers.

Some of the formers, which are horizontally next to each other, are arranged vertically offset in relation to each other.

DE 44 19 217 A1 shows a superstructure of a web-fed rotary printing press with a turning device, wherein partial webs are offset by half a partial web width in order to conduct them on top of each other and to a common former.

A folding apparatus with a five-, or even seven-fold transport cylinder which works together with a double cutter cylinder, is known from DE 43 44 620 A1.

A seven-fold transport cylinder designed as a puncture cylinder, is known from DE 44 26 987 A1.

EP 1 391 411 A1 discloses a folding apparatus, wherein a product section, which is to be put on spur needles, is pressed against the transport cylinder by means of a pressure roller with a soft surface.

A cutter cylinder, which cooperates with a counter-pressure cylinder, for web-shaped goods is disclosed in DE 33 03 628 C2, which in one representation has six, and in another representation three cutters one behind the other in the circumferential direction.

A folding apparatus with a double-wide folding cylinder and a double-wide cutting cylinder is known from USP 5,503,379, wherein two cutting devices can be arranged axially side-by-side on the double-wide cylinder.

The object of the invention is based on creating a web-fed rotary printing press.

This object is attained in accordance with the invention by means of the characteristics of claim 1 or 2.

Claims

1. A web-fed rotary printing press with a least one printing unit (02) for imprinting a web (03, 03') of six axially side-by-side arranged printed pages and a folding apparatus (12), characterized in that a transport cylinder (123) of the folding apparatus (12) is embodied with a circumference for receiving at least seven sectional lengths of the product, which are arranged one behind the other in the circumferential direction, and works together with four cutters (128, 128') which are arranged one behind the other, viewed in the circumferential direction of the transport cylinder (123).

2. A web-fed rotary printing press with a least one printing unit (02) for imprinting a web (03, 03') of six axially side-by-side arranged printed pages and a folding apparatus (12), characterized in that a transport cylinder (123) of the folding apparatus (12) is embodied with a circumference for receiving at least seven sectional lengths of the product, which are arranged one behind the other in the circumferential direction, and works together with two cutting cylinders (127), which are arranged one behind the other on the circumference of the transport cylinder (123) and each of which supports two cutters (128), or with one cutting cylinder (127') with four cutters (128) in the circumferential direction.

3. The web-fed rotary printing press in accordance

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with claim 1 or 2, characterized in that seven spur needle strips (129) are arranged on the transport cylinder (123) one behind the other in the circumferential direction as holding devices (129).

4. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the sectional lengths each correspond to the length of a newspaper page.

5. The web-fed rotary printing press in accordance

with claim 1 or 2, characterized in that three continuous webs (109, 111, 112, 113, 114, 116) can be conducted simultaneously to the transport cylinder (123) from three side-by-side arranged formers (101, 102, 103, 106, 107, 108).

6. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that continuous webs (109, 111, 112, 113, 114, 116) with a total of up to seventy-two layers located on top of each other can be conducted to the transport cylinder (123).

7. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the transport cylinder (123) has seven holding devices (129) one behind the other in the circumferential direction.

8. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the folding apparatus (12) has respectively two individually driven traction roller pairs (124) in its inlet area.

9. The web-fed rotary printing press in accordance with claim 1, characterized in that the folding apparatus (12) has two cutting cylinders (127), which work together with the transport cylinder (123).

10. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the folding

apparatus (12) is rotatorily driven by at least one drive motor (136) mechanically independently of the printing unit (03).

11. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the transport cylinder (123), at least one cutting cylinder (127), as well as a folding jaw cylinder (132) of the folding apparatus (12), are rotatorily driven by a common drive motor (136) mechanically independently of the printing unit (03).

12. The web-fed rotary printing press in accordance with claim 10 or 11, characterized in that a paddle wheel (133) is rotatorily driven via a driven connection from the cylinders (123, 127, 134) of the folding apparatus (12).

13. The web-fed rotary printing press in accordance with claim 10 or 11, characterized in that a delivery device (134) is driven by its own drive motor mechanically independently of the cylinders (123, 127, 134) of the folding apparatus (12).

14. The web-fed rotary printing press in accordance with claim 11, characterized in that driving is provided at a cutting cylinder (127).

15. The web-fed rotary printing press in accordance with claim 11, characterized in that driving is provided at the transport cylinder (123).

16. The web-fed rotary printing press in accordance with claim 11, 12, 13, 14 or 15, characterized in that driving from the drive motor (136) to one or several of the cylinders (123, 127, 132) is provided via a gear.

17. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that a superstructure (04), in which the web (03, 03') can be longitudinally cut into three partial webs (03a, 03b, 03c), as well as a folder

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structure (11), which at least one roller (117, 118) for conveying the partial webs (03a, 03b, 03c), is provided, and that the printing unit (02), the at least one roller (117, 118) for conveying the partial webs (03a, 03b, 03c) of the folder structure (11), as well as the downstream arranged folding apparatus (12), are each rotatorily driven by drive motors (61, 119, 120, 136) mechanically independently of each other.

18. The web-fed rotary printing press in accordance

with claim 1 or 2, characterized in that a folder structure (11), which two groups, offset vertically in respect to each other, of respectively at least two formers (101, 102, 103, 106, 107, 108) and at least one group of run-up rollers (88, 89, 93) arranged upstream of the folder structure (11), is provided.

19. The web-fed rotary printing press in accordance with claim 18, characterized in that partial webs ((03a, 03b, 03c, 03c1, 03c2) created from the two webs (03, 03') are conducted over the group of run-up rollers (88, 89, 93) to formers (101, 102, 103) of the one group of formers (101, 102, 103), as well as to formers (106, 107, 108) of the other group of formers (106, 107, 108).

20. The web-fed rotary printing press in accordance with claim 18, characterized in that at least two printing towers (01), each with at least two printing units (02), are provided.

21. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the printing unit has at least two pairs of respectively two cylinders (16, 17), namely a transfer cylinder (17) and an associated forme cylinder (16), that the transfer and forme cylinders (17, 16) are designed with a width for printing respectively six axially side-by-side arranged newspaper pages, and that the usable barrel of the transfer cylinder (17) has a ratio of 5,8 to 8,8 between its length and its diameter.

22. The web-fed rotary printing press in accordance with claim 1, 2, 17 or 21, characterized in that the printing unit has at least two pairs of respectively two cylinders (16, 17), namely a transfer cylinder (17) and an associated forme cylinder (16), that in a print-off position the transfer cylinders (17) work together with a satellite

cylinder (18) and constitute a printing location.

23. The web-fed rotary printing press in accordance with claim 1, 2, 17 or 21, characterized in that the printing unit has at least two pairs of respectively two cylinders (16, 17), namely a transfer cylinder (17) and an associated forme cylinder (16), and that in a print-on position the transfer cylinders (17) work together in pairs and constitute a printing location.

24. The web-fed rotary printing press in accordance with claim 21, 22 or 23, characterized in that the two pairs (16, 17) are each driven by at least one drive motor (61) mechanically independently of each other.

25. The printing unit in accordance with claim 1 or 2, characterized in that a transfer cylinder (17) and a forme cylinder (16) of the printing unit (02) have a circumference which corresponds at least to two upright printed pages, in particular newspaper pages in broadsheet format, which are arranged one behind the other in the circumferential direction.

26. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that a transfer cylinder (17) of the printing unit (02) has three dressings (21) side-by-side in the axial direction on three sections (AB, CD, EF) of its shell surface.

27. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that a transfer cylinder (17) of the printing unit (02) has at least three, in particular six, dressings (21) side-by-side in the axial direction, and in the circumferential direction respectively two dressings (19) on six sections (A, B, C, D, E, F) of its shell surface.

28. The web-fed rotary printing press in accordance

with claim 1 or 2, characterized in that the printing unit is embodied as a nine cylinder satellite printing unit (02).

29. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the printing unit is embodied as an H-printing unit with four pairs (16, 17) of cylinders (16, 17) respectively having a transfer and a forme cylinder (16, 17).

30. The web-fed rotary printing press in accordance with claim 28, characterized in that a transfer cylinder (17) and a forme cylinder (16) of the printing unit (02) are mechanically coupled for being driven, and are driven mechanically independently of the associated printing cylinder (18).

31. The web-fed rotary printing press in accordance with claim 30, characterized in that the pair of forme cylinders (16) and transfer cylinders is driven by means of its own drive motor (61), and the printing cylinder (17, 18) has its own drive motor (61).

32. The web-fed rotary printing press in accordance with claim 29, characterized in that in an H-printing unit all four pairs (16, 17) each have their own drive motor (61).

33. The web-fed rotary printing press in accordance with claim 28, characterized in that in a nine cylinder

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printing unit all four pairs of cylinders (16, 17) each have their own drive motor (61), and the satellite cylinder (18) has its own drive motor (61).

34. The web-fed rotary printing press in accordance with claim 1, 28 or 29, characterized in that all cylinders (16, 17, 18) of the printing unit (02) each have a drive

motor (61) which is mechanically independent of the remaining cylinders (16, 17, 18).

35. The web-fed rotary printing press in accordance with one of claims 30 to 34, characterized in that driving is provided from the drive motor (61) via a gear (62), in particular a gear train.

36. The web-fed rotary printing press in accordance with claim 1, 2 or 18, characterized in that a group of three side-by-side arranged formers (101, 102, 103, or 106, 107, 108) is assigned to the folding apparatus (12).

37. The web-fed rotary printing press in accordance with claim 36, characterized in that three upper formers are respectively arranged aligned with three lower formers (101, 102, 103, 106, 107, 108).

38. The web-fed rotary printing press in accordance with claim 18 and 37, characterized in that partial webs (03a, 03b, 03c), which are arranged on top of each other and enter the group of run-up rollers (89, 93) can be combined into at least two continuous webs (106, 107, 108, 113, 114, 116) of a variable number of partial webs (3a, 3b, 3c), one of which is conducted to an upper, and the other to a lower former (101, 102, 103, 106, 107, 108).

39. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the usable barrel

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of a transfer cylinder (17) of a printing unit has a length of 1,850 to 2,400 mm.

40. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that the usable barrel of a transfer cylinder (17) of a printing unit has a circumference of 850 to 1,300 mm.

41. The web-fed rotary printing press in accordance with claim 1, characterized in that a cutting cylinder (127') is assigned to the transport cylinder (123), which has four cutters (128) arranged one behind the other in the circumferential direction.

42. The web-fed rotary printing press in accordance with claim 2 or 41, characterized in that the four cutters (128) of the cutting cylinder (127') with four cutters (128) are each spaced apart, different from an equidistant arrangement, alternatingly by $90^\circ - \delta$ and $90^\circ + \delta$, wherein δ represents an angle of less than 2° .

43. The web-fed rotary printing press in accordance with claim 1 or 2, characterized in that a contact cylinder (143) is provided, which is arranged in an area of picking up products by spiking on spur needles (144) and works together with the transport cylinder (123) as a thrust element.

44. The web-fed rotary printing press in accordance with claim 43, characterized in that the contact element has recesses for receiving the spur needles (144) on the surface working together with the spur needles.

45. The web-fed rotary printing press in accordance with claim 2, 8 or 41, characterized in that the cutting cylinder (127, 127') works together with the transport cylinder as a thrust element for the cutting.